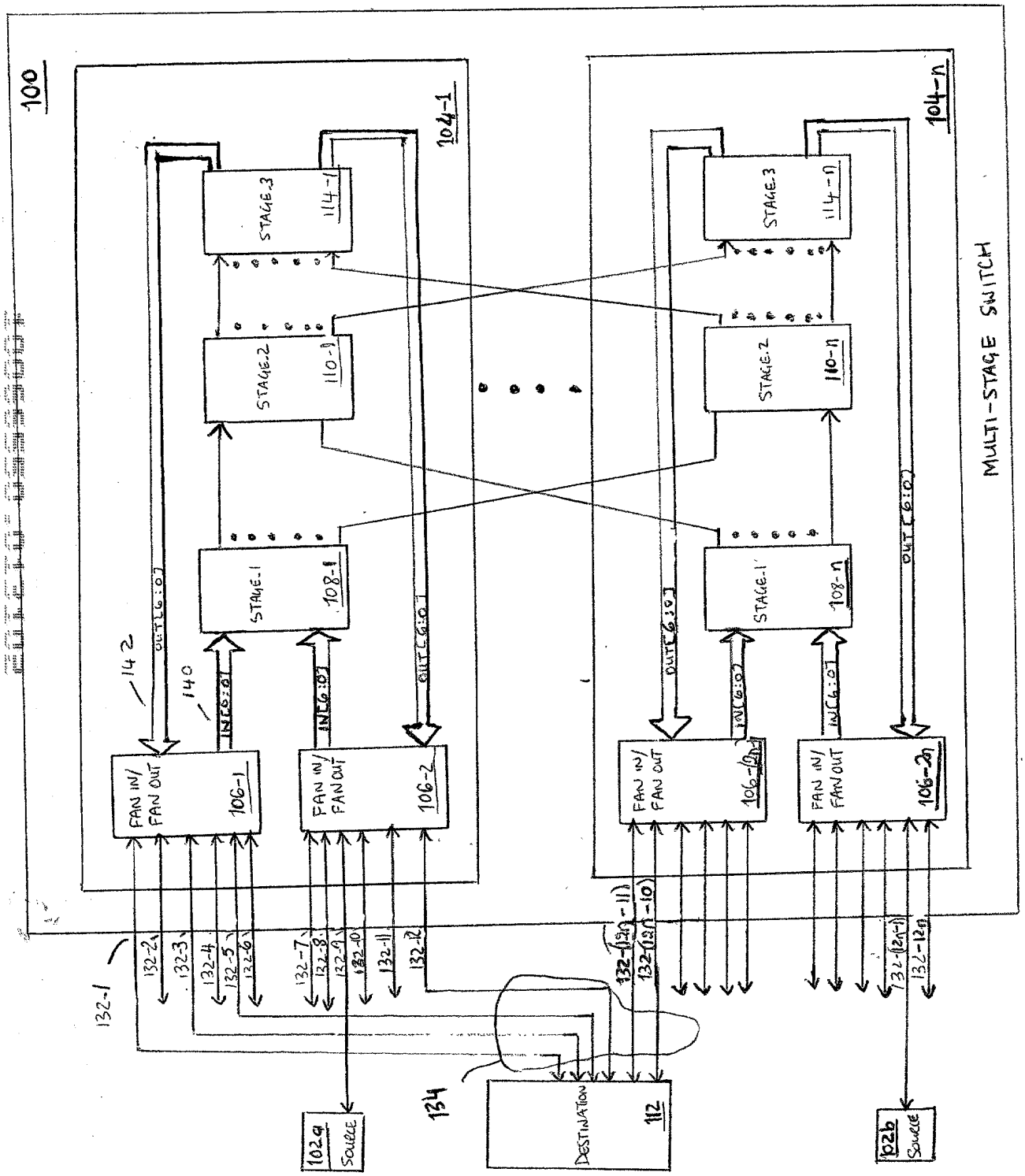

100
MULTI-STAGE SWITCH
104-1
104-n
STAGE.3
STAGE.2
STAGE.1
114-1
114-n
110-1
110-n
108-1
108-n
FAN IN/ FAN OUT
106-1
106-2
106-n
140
142
IN[6:0]
OUT[6:0]
132-1
132-2
132-3
132-4
132-5
132-6
132-7
132-8
132-9
132-10
132-11
132-12
132-(2n-11)
132-(2n-10)
132-(2n-1)
132-2n
134
DESTINATION
112
102a
SOURCE
102b
SOURCE

FIG. 1

104-1

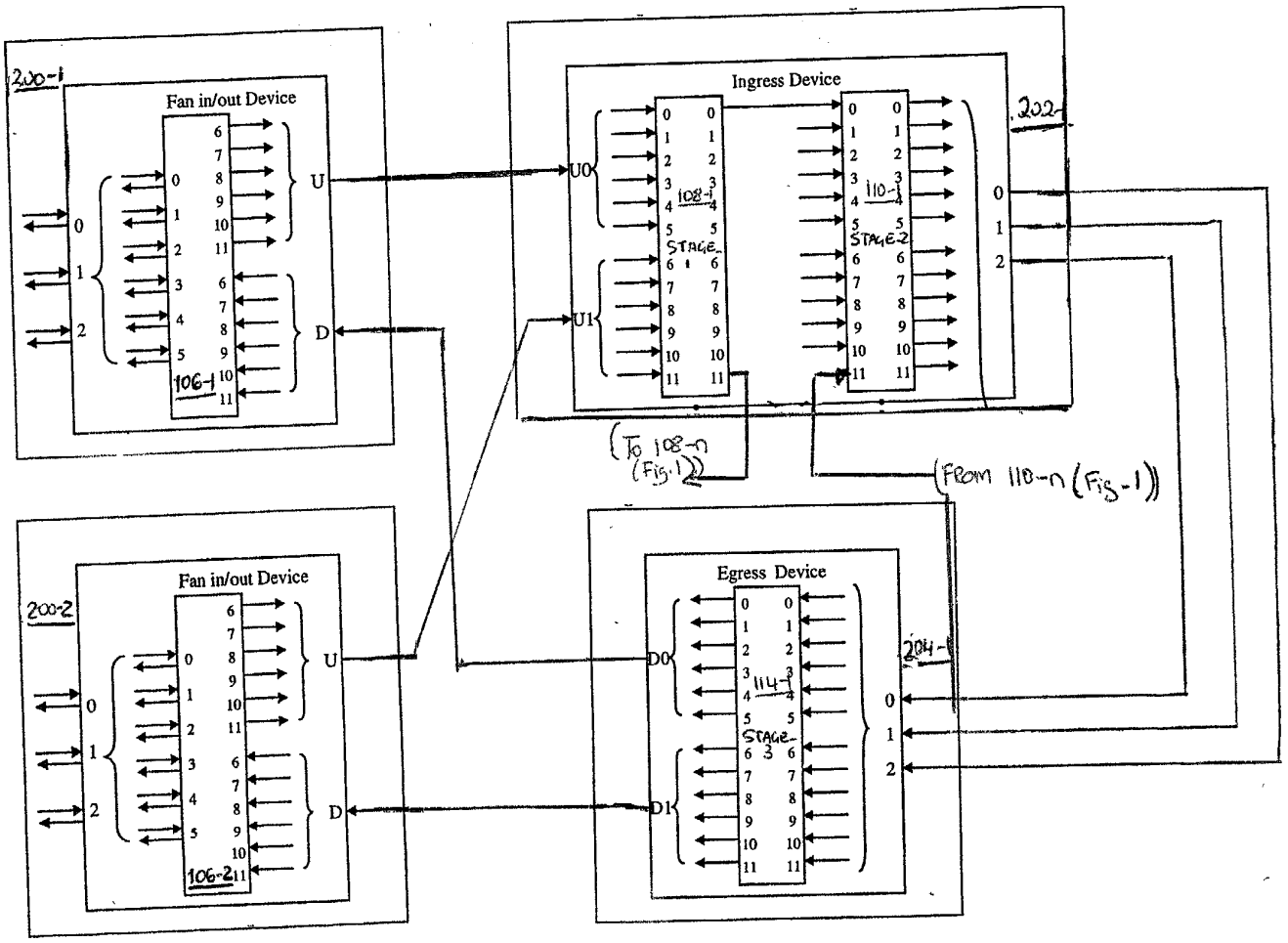

200-1
Fan in/out Device
106-1
U
D
Ingress Device
202
U0
U1
108-1
110-1
STAGE-1
STAGE-2
To 108-n (Fig. 1)
From 110-n (Fig. 1)
200-2
Fan in/out Device
106-2
Egress Device
D0
D1
204
114-1
STAGE-3

FIG. 2

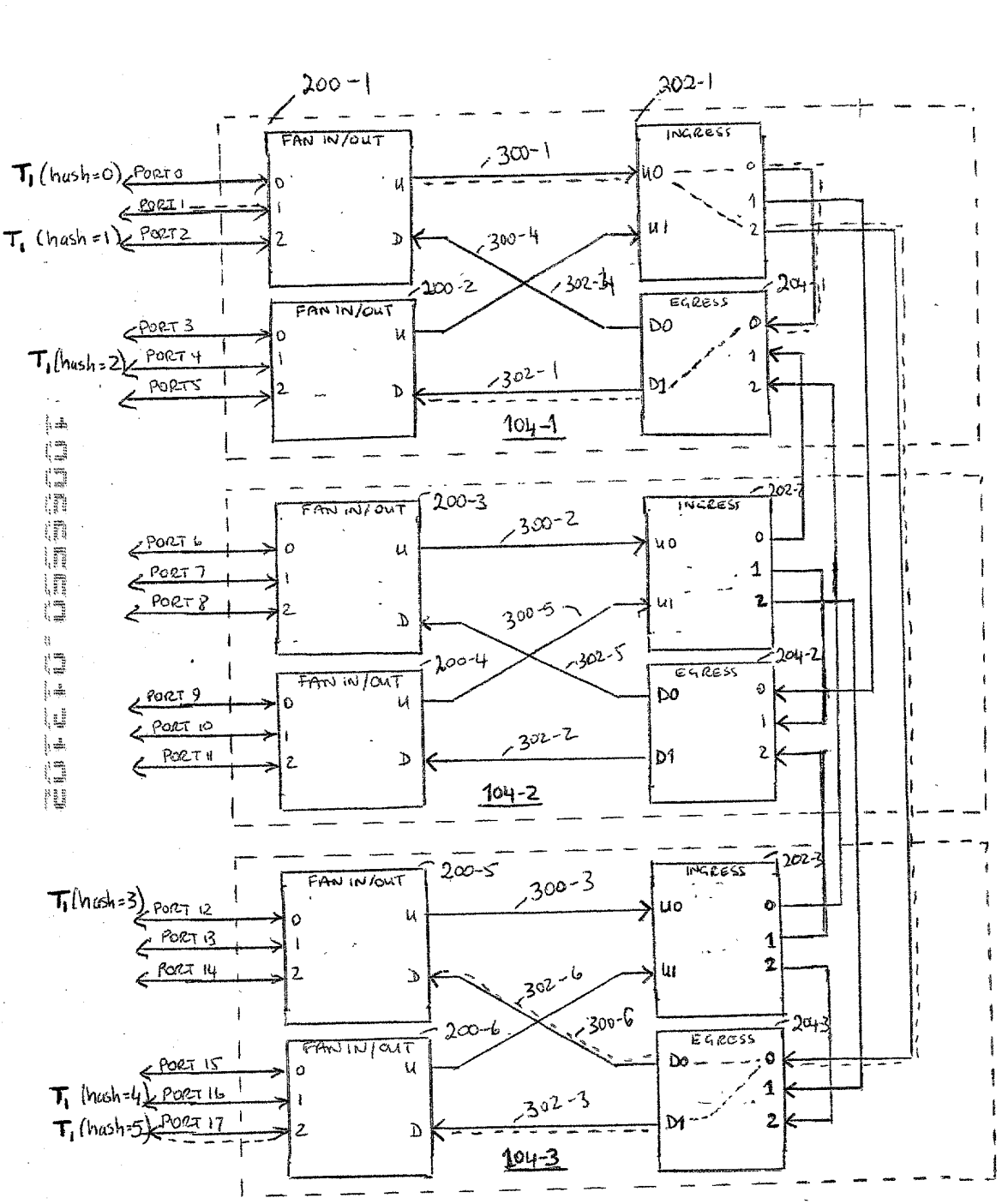

200-1
202-1
FAN IN/OUT
INGRESS
300-1
T1 (hash=0)
PORT 0
PORT 1
T1 (hash=1)
PORT 2
300-4
302-4
200-2
EGRESS
204-1
PORT 3
T1 (hash=2)
PORT 4
PORT 5
302-1
104-1
200-3
202-2
300-2
PORT 6
PORT 7
PORT 8
300-5
302-5
200-4
204-2
PORT 9
PORT 10
PORT 11
302-2
104-2
200-5
202-3
300-3
T1 (hash=3)
PORT 12
PORT 13
PORT 14
302-6
300-6
200-6
204-3
PORT 15
T1 (hash=4)
PORT 16
T1 (hash=5)
PORT 17
302-3
104-3

FIG. 3

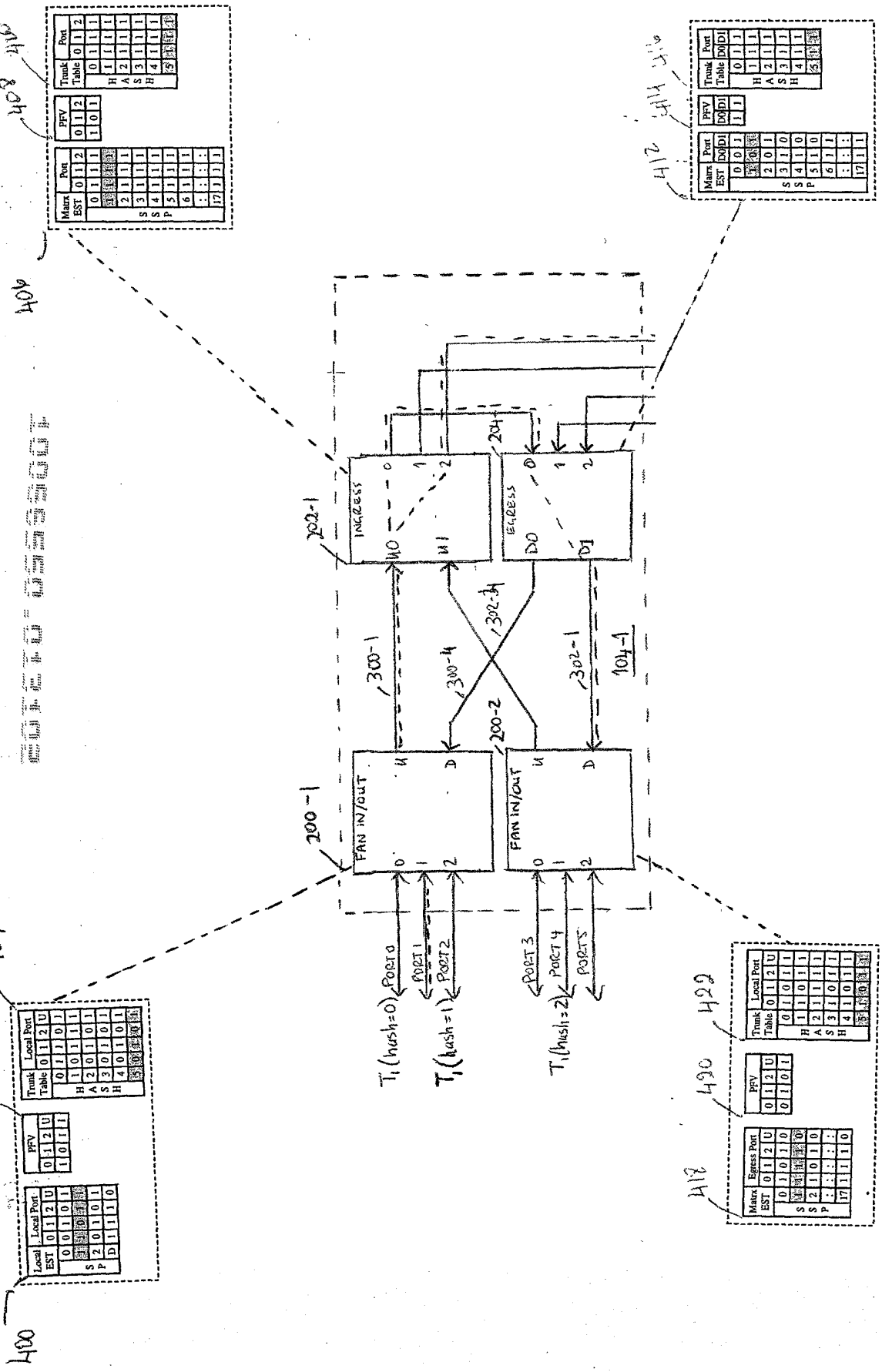

400
402
404
406
408
410
412
414
416
418
420
422
424
426
428
430
200-1
200-2
202-1
204
300-1
300-2
300-3
300-4
302-1
302-2
302-3
302-4
104-1
FAN IN/OUT
INGRESS
EGRESS
Port 0
Port 1
Port 2
Port 3
Port 4
Port 5
T1(hash=0)
T1(hash=1)
T1(hash=2)

FIG. 4A

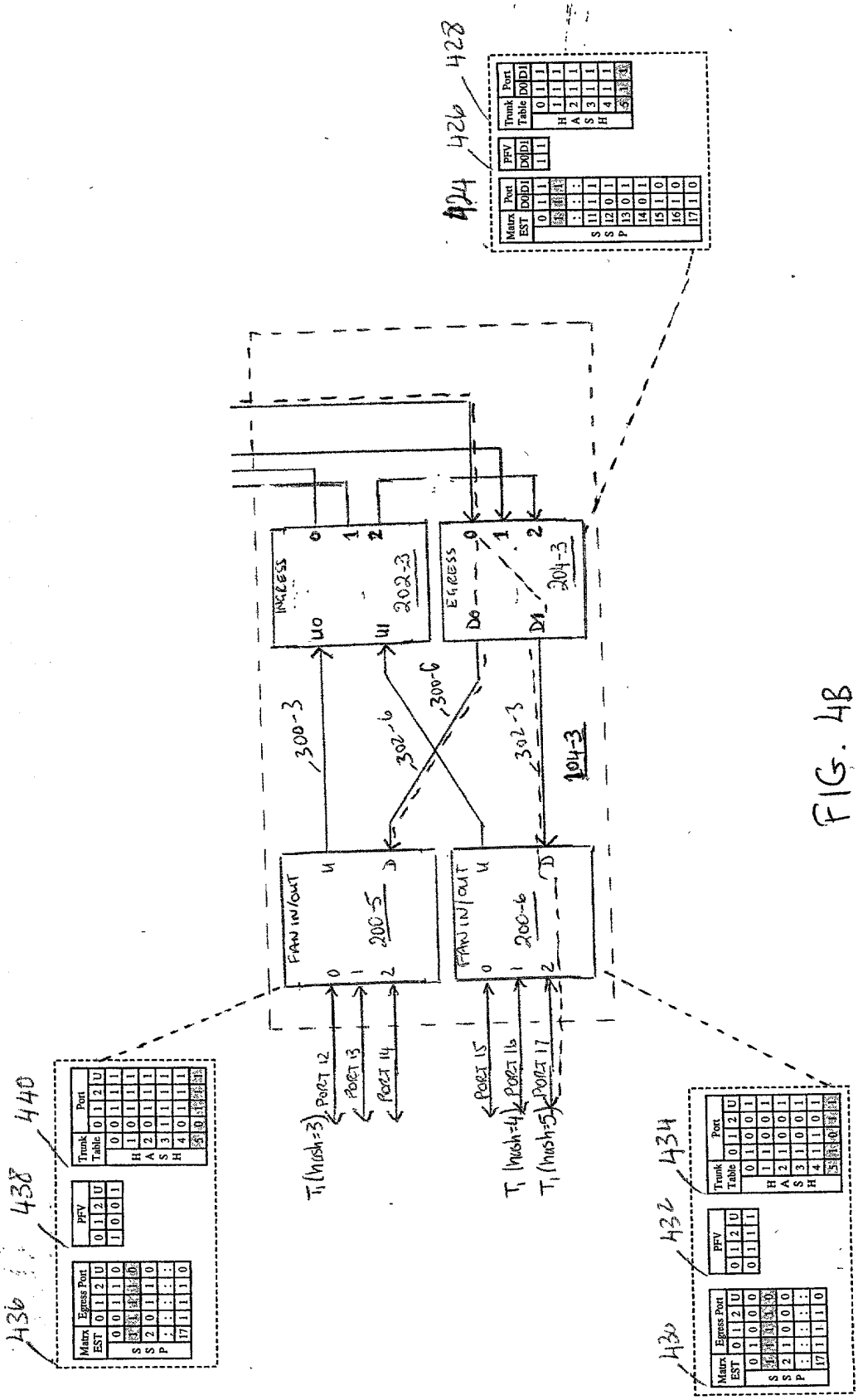

428
426
424
INGRESS
202-3
EGRESS
204-3
300-3
300-6
302-6
302-3
104-3
FAN IN/OUT
206-5
FAN IN/OUT
206-6
Port 12
Port 13
Port 14
Port 15
Port 16
Port 17
T1 (hash=3)
T1 (hash=4)
T1 (hash=5)
440
438
436
434
432
430

FIG. 4B

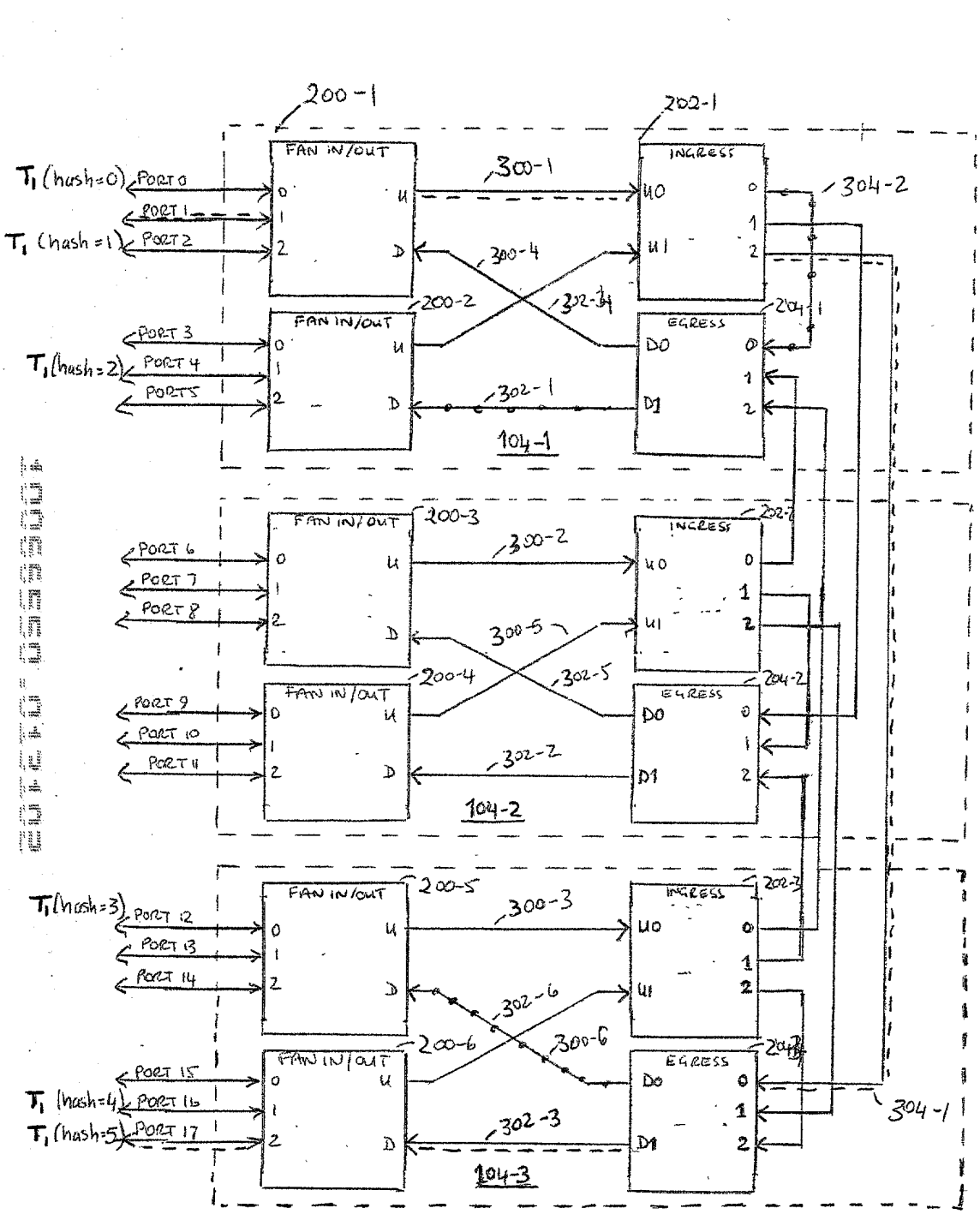

100
200-1
202-1
FAN IN/OUT
INGRESS
EGRESS
300-1
300-4
302-4
200-2
304-2
304-1
302-1
104-1
200-3
202-2
300-2
300-5
302-5
200-4
204-2
302-2
104-2
200-5
202-3
300-3
302-6
200-6
300-6
204-3
302-3
104-3
T1 (hash=0)
T1 (hash=1)
T1 (hash=2)
T1 (hash=3)
T1 (hash=4)
T1 (hash=5)
PORT 0
PORT 1
PORT 2
PORT 3
PORT 4
PORT 5
PORT 6
PORT 7
PORT 8
PORT 9
PORT 10
PORT 11
PORT 12
PORT 13
PORT 14
PORT 15
PORT 16
PORT 17

FIG. 5

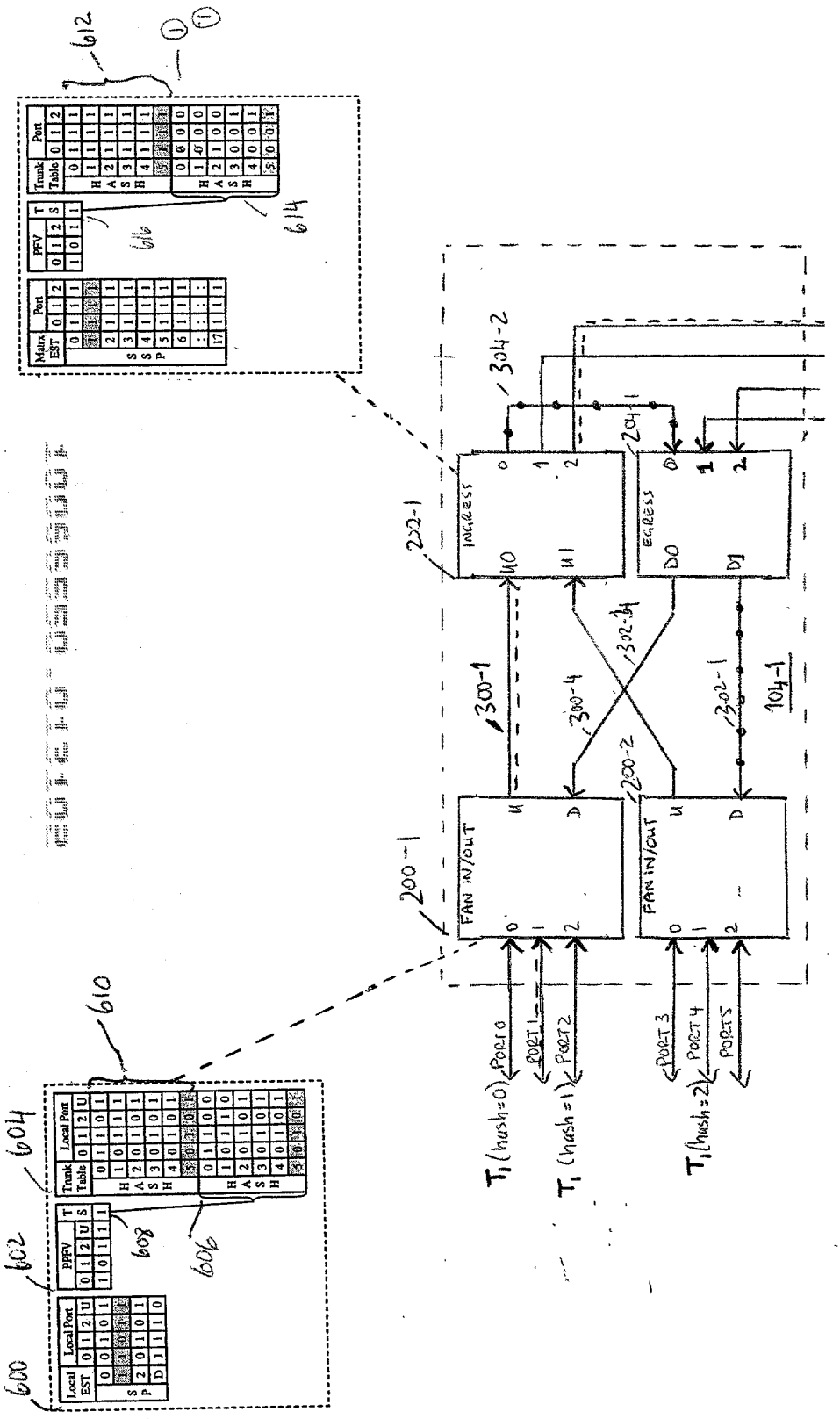

612
614
616
610
604
602
600
608
606
200-1
202-1
204-1
304-2
300-1
300-4
302-3
302-2
302-1
104-1
200-2
INGRESS
EGRESS
FAN IN/OUT
FAN IN/OUT
PORT 0
PORT 1
PORT 2
PORT 3
PORT 4
PORT 5
T1 (hash=0)
T1 (hash=1)
T1 (hash=2)

FIG. 6A

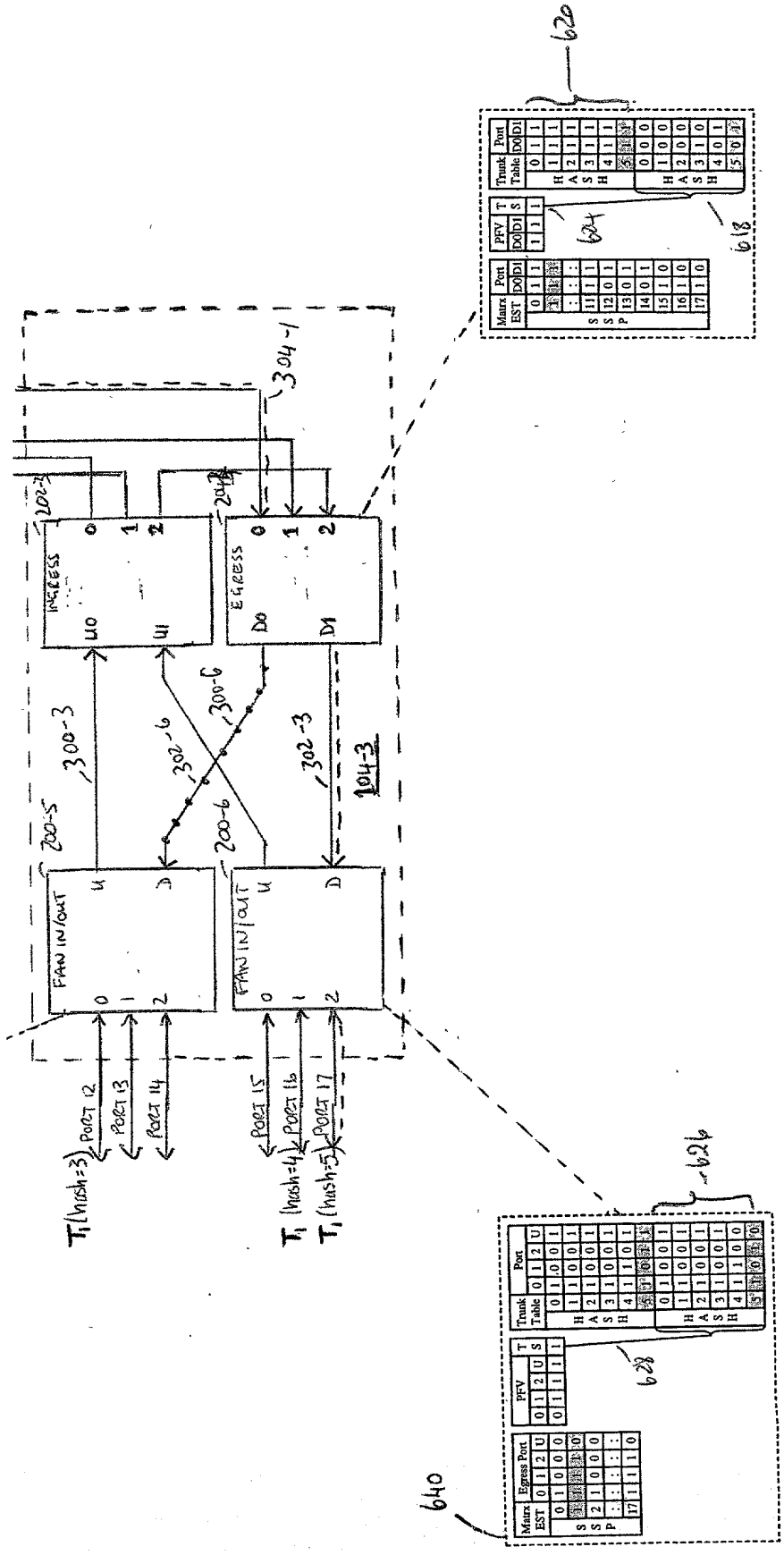

620
624
618
626
628
640
304-1
202-2
204-2
INGRESS
EGRESS
U0
U1
D0
D1
300-3
300-6
302-6
302-3
200-5
200-6
194-3
FAN IN/OUT
Port 12
Port 13
Port 14
Port 15
Port 16
Port 17
T1 (hash=3)
T1 (hash=4)
T1 (hash=5)

FIG. 6B

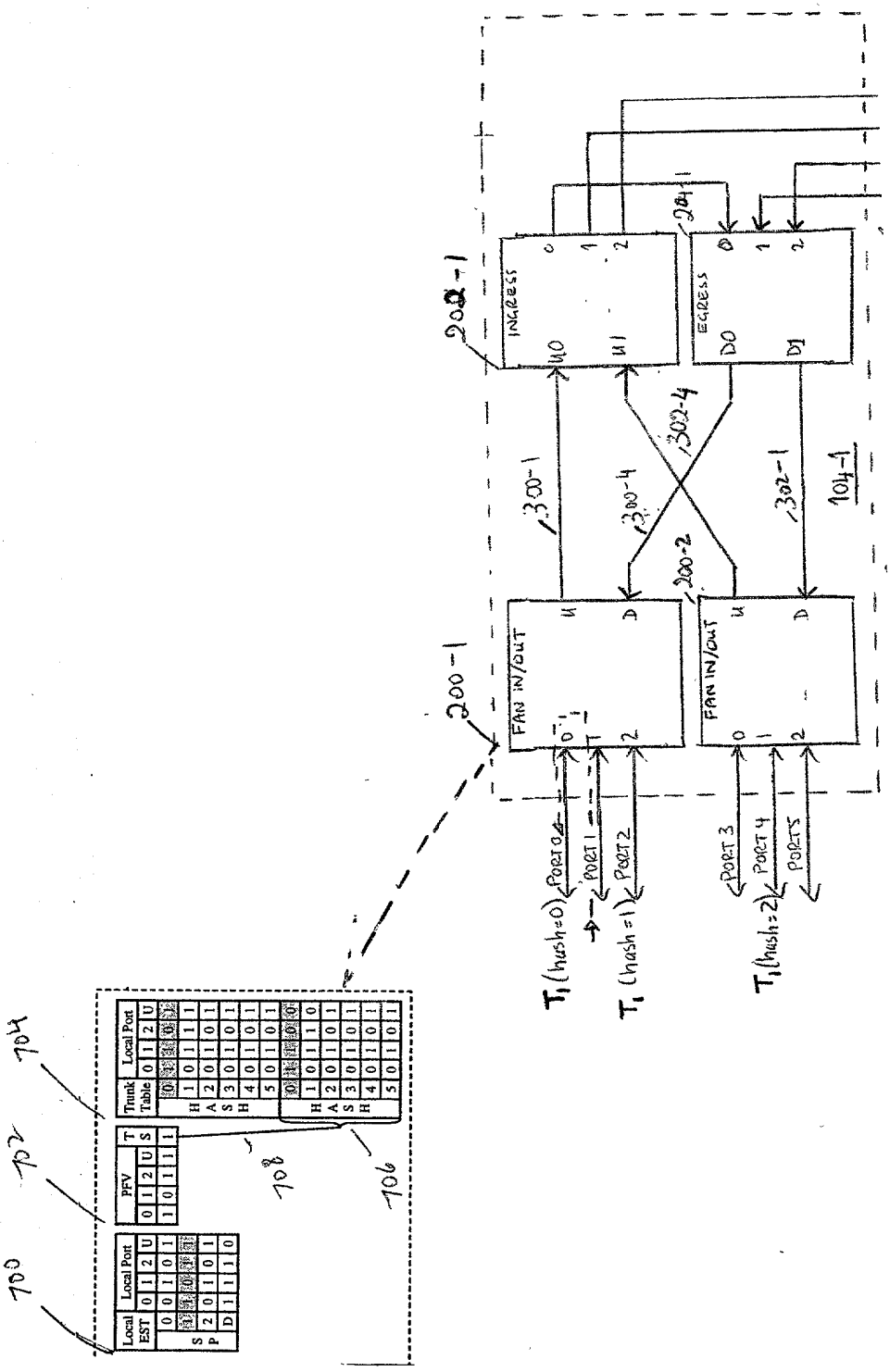

700
702
704
706
708
Local EST
Local Port
PFV
Trunk Table
INGRESS
EGRESS
FAN IN/OUT
200-1
200-2
202-1
204-1
300-1
300-4
302-4
302-1
104-1
Port 0
Port 1
Port 2
Port 3
Port 4
Port 5
T1 (hash=0)
T1 (hash=1)
T1 (hash=2)

FIG. 7

800

PHYSICAL LAYER (L1) HEADER	DATA LINK LAYER (L2) HEADER	NETWORK LAYER (L3) HEADER	TRANSPORT LAYER (L4) HEADER	DATA	CHECKLIST
802	804	806	808	810	812

PRIOR ART

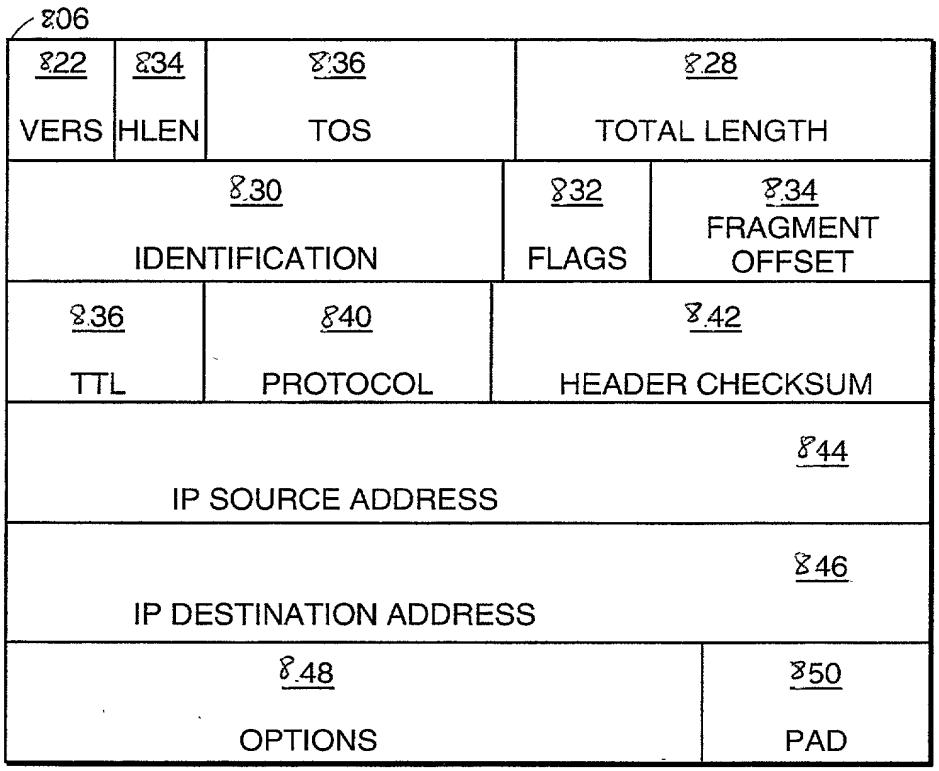
FIG. 8 A

804

L2 DESTINATION ADDRESS (DA)	L2 SOURCE ADDRESS (SA)	VLAN ID (OPTIONAL) (12 BITS)		LENGTH/ TYPE (2 BYTES)
		TAG PROTOCOL IDENTIFIER (TPID)	TAG CONTROL INFORMATION (TCI)	
(6 BYTES)	(6 BYTES)			
814	816	818a	818b	820

PRIOR ART

FIG. 8 B



PRIOR ART

FIG. 8 C

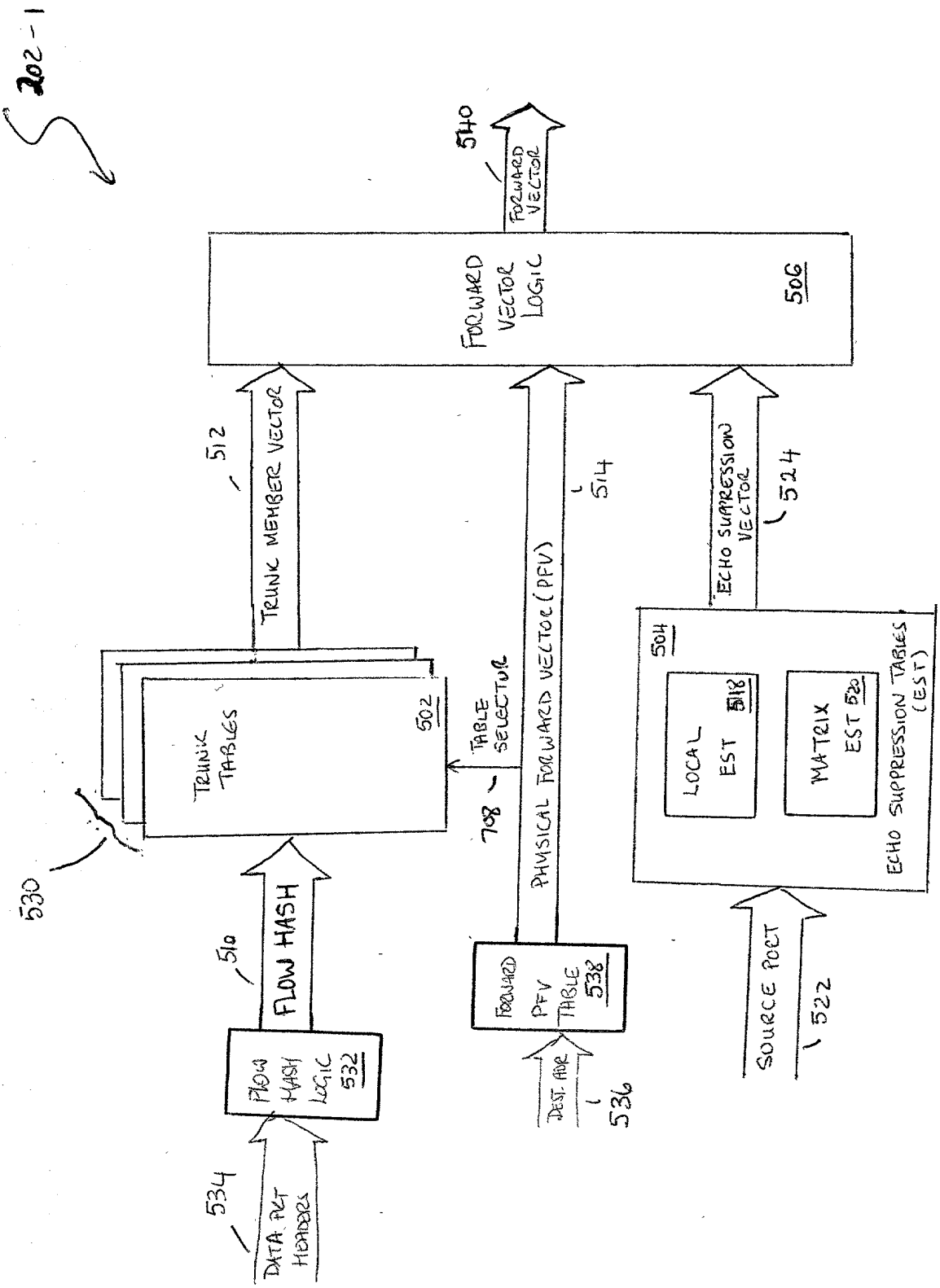

202-1
540
FORWARD VECTOR
FORWARD VECTOR LOGIC
506
512
TRUNK MEMBER VECTOR
514
PHYSICAL FORWARD VECTOR (PFV)
524
ECHO SUPPRESSION VECTOR
TRUNK TABLES
502
TABLE SELECTOR
708
504
LOCAL EST 518
MATRIX EST 520
ECHO SUPPRESSION TABLES (EST)
530
510
FLOW HASH
FLOW HASH LOGIC 532
FORWARD PFV TABLE 538
DEST. ADR
536
SOURCE PORT
522
534
DATA PKT HEADERS

FIG. 9

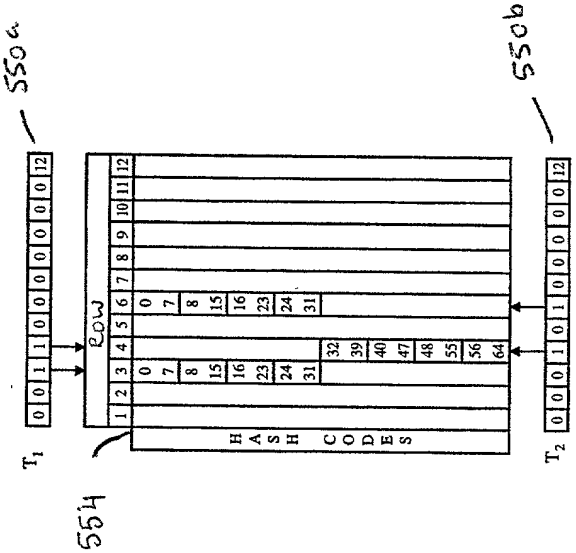


FIG. 10B

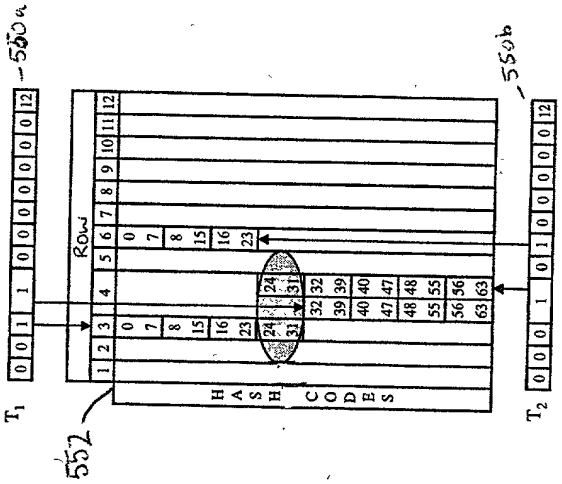


FIG. 10A

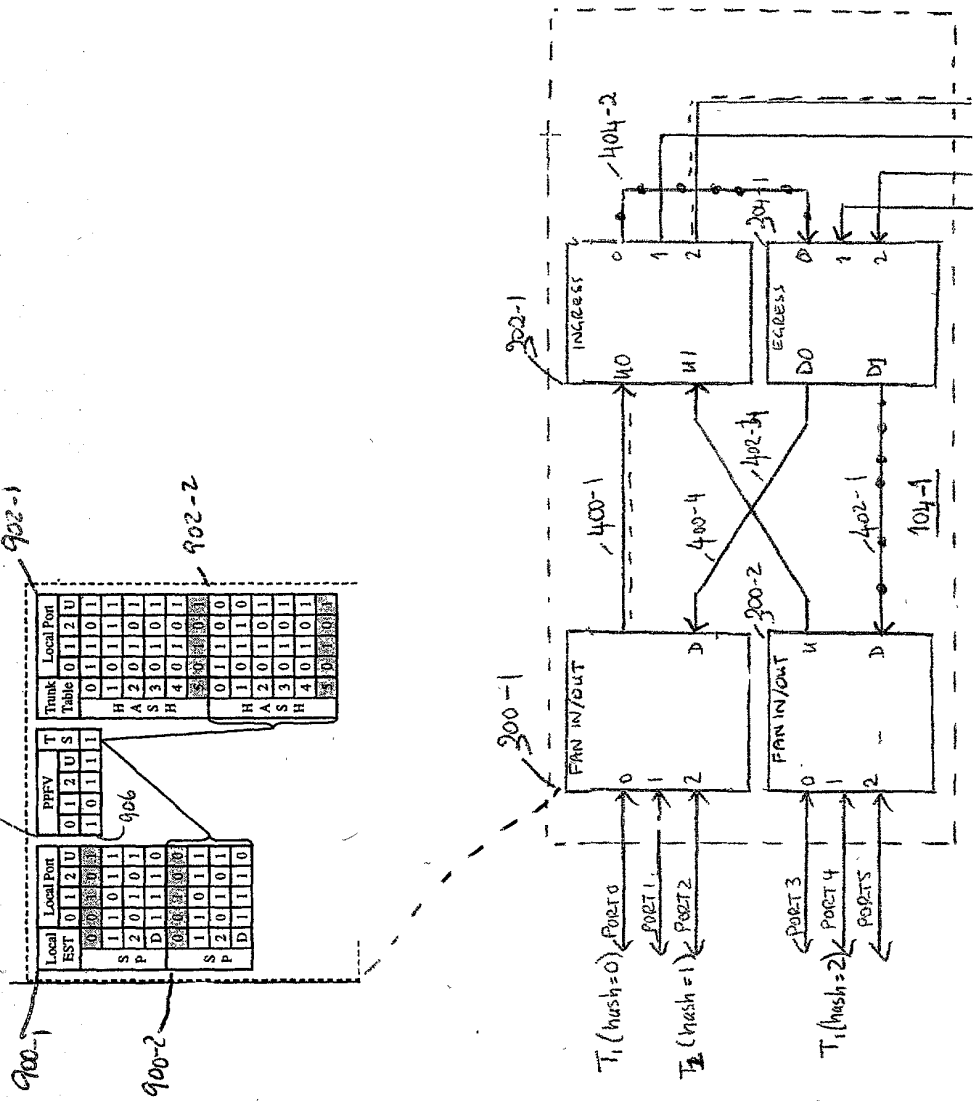

902-1
902-2
904
906
900-1
900-2
PPFV
Trunk Table
Local Port
Local EST
300-1
300-2
FAN IN/OUT
INGRESS
EGRESS
404-2
404-1
402-1
402-2
400-1
400-2
400-3
400-4
104-1
Port 0
Port 1
Port 2
Port 3
Port 4
Port 5
T1 (hash=0)
T2 (hash=1)
T1 (hash=2)

FIG. 11